

SUBA

- 0960713-080100

4. The repeater of claim 2, wherein

the third transmission path further comprises the first signal regenerator when the first selectably-activated loopback circuit is activated; and

5 the fourth transmission path further comprises the second signal regenerator when the second selectably-activated loopback circuit is activated.

5. The repeater of claim 1, further comprising:

a first visual indicator which signals when only the first selectably-activated loopback circuit is activated;

5 a second visual indicator which signals when only the second selectably-activated loopback circuit is activated; and

a third visual indicator which signals when the first and second selectably-activated loopback circuits are both activated

6. The repeater of claim 1, further comprising:

a multi-state visual indicator, with a plurality of visually distinct operating states configured to:

5 operate in a first state when only the first selectably-activated loopback circuit is activated;

operate in a second state when only the second selectably-activated loopback circuit is activated; and

operate in a third state when the first and second selectably-activated loopback circuits are both activated.

10

7. The repeater of claim 1, wherein the first signal transmission path further comprises:

a line build-out circuit.

8. The repeater of claim 1, wherein the second signal transmission path further comprises:

a pre-equalizing line build-out circuit.

5

5

10

15

a first monitor jack for non-intrusively providing a monitor connection with the first signal transmission path; and

5

a third jack for providing signal access to the first digital carrier link for coupling to a digital network; and

5

in

a first frame format detector configured to determine a first format of a first signal on the first signal transmission path;

5

fir

th

16. The repeater of claim 15 wherein the first and second formats of the first and second signals, respectively, are one of unframed, SF/D4, and T1-ESF.

fo

18. The repeater of claim 1, wherein the second input port and the first output port are adapted for connection to a T1 span.

19. The repeater of claim 1, wherein the physical dimensions of the repeater conform to a circuit-card specification for a standard wall-mountable telecommunications shelf.

20. The repeater of claim 19 wherein the circuit-card specification is one of a 200-type or 400-type form factor.

21. The repeater of claim 19 wherein the physical dimensions are less than substantially 13.5mm in length and less than substantially 14mm in height.

Sub A' >

007080"ET40E960

22. A terminal extension repeater for interfacing between a digital service network and a local network span comprising:

a first input port for connection with a terminal side of the digital service network, the first input port receiving a first digital signal;

5 a first output port for connection with a network side of the local network span connected with customer premises equipment, the first output port providing a first regenerated signal to the local network span;

10 a second input port for connection with the network side of the local network span connected with customer premises equipment, the second input port receiving a second digital signal;

a second output port for connection with the terminal side of the digital service network, the second output port providing a second regenerated signal to the digital service network;

a first signal regenerator coupled between the first input and output for generating the first regenerated signal based on the first digital signal;

15 a second signal regenerator coupled between the second input and output for generating the second regenerated signal based on the second digital signal;

a first selectably-activated loopback circuit which, when activated, loops the first regenerated signal to the second output port;

20 a second selectably-activated loopback circuit which, when activated, loops the second regenerated signal to the first output port; and

a controller coupled with the first and second selectably-activated loopback circuits configured to selectively activate the first and second selectably-activated loopback circuits individually and simultaneously.

25

30

23. The terminal extension repeater of claim 22, wherein the controller further comprises:
a first loopback code detector configured to:

remotely activate the second selectably-activated loopback circuit when the second loopback code detector determines the second digital signal includes a loop-up code and the second selectably-activated loopback circuit is in a de-activated state;

remotely de-activate the second selectably-activated loopback circuit when the second loopback code detector determines the second digital signal includes a loop-down code and the second selectably-activated loopback circuit is in an activated state; and

remotely de-activate the first selectably-activated loopback circuit when the second loopback code detector determines the second digital signal includes a loop-down code and the first selectably-activated loopback circuit is in an activated state.

24. The terminal extension repeater of 23, wherein the first loopback detector is adapted to detect loop-up and loop-down codes in a plurality of formats.

25. The terminal extension repeater of claim 23, further comprising:

a second loopback code detector configured to:

remotely activate the first selectably-activated loopback circuit when the first loopback code detector determines the first digital signal includes a loop-up code and the first selectably-activated loopback circuit is in a de-activated state;

remotely de-activate the first selectably-activated loopback circuit when the first loopback code detector determines the first digital signal includes a loop-down code and the first selectably-activated loopback circuit is in an activated state; and

remotely de-activate the second selectably-activated loopback circuit when the first loopback code detector determines the first digital signal includes a loop-down code and the second selectably-activated loopback circuit is in an activated state.

26. The terminal extension repeater of claim 25, wherein the second loopback detector is adapted to detect loop-up and loop-down codes in a plurality of formats.

a multi-position local switch which, in a first position, simultaneously activates the first and second selectably-activated loopback circuits and, in a second position, de-activates all of the first and second selectably-activated loopback circuits which are activated.

a line build out circuit which adjustably attenuates the first regenerated signal before the first regenerated signal reaches the first output port; and

a pre-equalizer circuit which adjustably re-shapes the second regenerated signal before the second regenerated signal reaches the second output port.

a first monitor jack for non-intrusively providing a monitor connection with the first digital signal; and

a second monitor jack for non-intrusively providing a monitor connection with the second digital signal.

a first frame format detector configured to determine a first format of the first signal;

a second frame format detector configured to determine a second format of the second signal;

a first visual indicator which provides one of a first plurality of indications based on the first format; and

a second visual indicator which provides one of a second plurality of indications based the second format.

31. The terminal extension repeater of claim 30 wherein the first and second formats of the first and second signals, respectively, are one of unframed, SF/D4, and T1-ESF.

32. The terminal extension repeater of claim 22, wherein:

the first input port and the second output port are adapted for connection to a DSX-1 network; and

the second input port and the first output port are adapted for connection to a T1 span.

5

33. The terminal extension repeater of claim 22, wherein the physical dimensions of the terminal extension repeater conform to a circuit-card specification for a standard wall-mountable telecommunications shelf.

34. The terminal extension repeater of claim 33 wherein the circuit-card specification is one of a 200-type or 400-type form factor.

35. The terminal extension repeater of claim 33 wherein the physical dimensions are less than substantially 13.5mm in length and less than substantially 14mm in height.

5

10

15

a first input port for connection to a first digital carrier link to a digital network;
a first output port for connection to a second digital carrier link to digital terminal equipment;

a second input port for connection to the second digital carrier link to digital terminal equipment;

a first monitor jack for non-intrusively providing a monitor connection with the first signal transmission path; and

37. The repeater of claim 36, further comprising:

38. The repeater of claim 37, further comprising:

a second frame format/detector configured to determine a second format of a second signal on the second transmission path;

a second visual indicator which provides one of a second plurality of indications based the second format.

10

39. The repeater of claim 38 wherein the first and second formats of the first and second signals, respectively, are one of unframed, SF/D4, and T1-ESF.

40. The repeater of claim 36, wherein the physical dimensions of the repeater conform to a circuit-card specification for a standard wall-mountable telecommunications shelf.

41. The repeater of claim 40 wherein the circuit-card specification is one of a 200-type or 400-type form factor.

42. The repeater of claim 40 wherein the physical dimensions are less than substantially 13.5mm in length and less than substantially 14mm in height.

43. A repeater for interfacing between a digital service network and a local network span comprising:

a first input port for connection to a first digital carrier link to a digital network;

a first output port for connection to a second digital carrier link to digital terminal equipment;

a first signal transmission path between the first input and output ports;

a second input port for connection to the second digital carrier link to digital terminal equipment;

a second output port for connection to the first digital carrier link to a digital network;

a second signal transmission path between the second input and output ports;

a first monitor jack for non-intrusively providing a monitor connection with the first signal transmission path;

a second monitor jack for non-intrusively providing a monitor connection with the

second signal transmission path;

a first frame format detector configured to determine a first format of a first signal on the first signal transmission path;

a second frame format detector configured to determine a second format of a second signal on the second transmission path;

- ~~repeater of class
factor.~~